

# **An Overview of Land Use Control Management Systems**

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## **EXECUTIVE SUMMARY**

Land use controls (LUCs) are used to provide protection from exposure to contaminants that exist or remain on a site. LUCs are classified as institutional (administrative and/or legal) controls or engineering (physical) controls. The determination as to the type and duration of a specific LUC depends on regulatory requirements and site-specific conditions, although many controls are put in place for long-term use. State environmental agencies are often charged with the responsibility for managing (which includes tracking and monitoring) the LUC over the long term. Therefore, these agencies have a particular interest in using LUC management systems or programs that are easily accessible and include accurate site-specific information about the use of LUCs. Many states have identified as a priority the need to develop registries or lists to manage LUCs. States that receive funding for the development and enhancement of the response programs from the U.S. Environmental Protection Agency's Brownfields Program under the authorities of Comprehensive Environmental Response, Compensation and Liability Act Section 128(a) are required to develop LUC registries as a condition for funding. It should be noted that various financing mechanisms exist for the long-term management of LUCs, such as stewardship fees, oversight fees, and trust funds.

The ITRC Radionuclides Team conducted a survey of seven states with major Department of Energy facilities (ITRC 2004) and found that the areas identified as significant challenges faced by state regulators included information exchange and management and monitoring of LUCs as well as the need to ensure long-term stewardship of LUCs. Subsequently, the ITRC State Engagement Team conducted a survey which identified the management and long-term stewardship issues surrounding LUCs as the top environmental priority. Because of the importance that states put on this issue, the ITRC Brownfields Team identified, researched, and reviewed various LUC management systems.

This document presents an overview of various systems and state programs that track, monitor, and/or educate people on LUCs. Moreover, it describes each of these systems and programs and explains what and how information is provided by each system. Information about the various technologies and their associated costs for development and implementation is provided, advantages and limitations are discussed, potential users are identified, contact information for the user is provided, and case studies offer insight into implementation efforts. It is important to note that, due to the ongoing and sometimes contentious debate about the "appropriateness" of LUCs in comparison to permanent, active, or "complete" remedies, this document does not evaluate the policy issues related to LUCs or their role as part of an appropriate solution to any specific environmental condition.

This document provides federal and state regulators, the regulated community, and interested stakeholders with information on the various systems or technologies that are currently available to manage LUCs as well as to notify and educate stakeholders. The intended target audience for this overview document includes state and municipal governments, including the environmental, cleanup, health, and related regulatory agencies. This document is structured to include the definition and purpose of LUCs and how they are used; descriptions of some of the various

administrative, regulatory, and legal processes for the implementation and long-term stewardship of LUCs (including the Uniform Environmental Covenants Act); overviews and summaries of various state programs; and summaries of the various management systems identified through team research. A technology matrix developed by the team allows for the comparison of each system that was reviewed.

Numerous important features and elements for LUCs have been identified and evaluated by states for inclusion in state LUC management systems. The ITRC Brownfields Team found that most states have some form of a LUC registry, although no two of those reviewed were exactly alike. The registries have varying levels of sophistication and provide different points of access for information. These registries range from a simple listing of sites that contain LUCs for restricted use to more complicated notification and tracking systems that identify when and where a LUC was implemented and whether the LUC may be compromised.

For the purposes of this document, the ITRC Brownfields Team subdivided LUC management systems into four categories: those that track properties that use LUCs, those that provide notification of any activity that may be occurring on a site that has LUCs, those used to conduct outreach to or educate a community about LUCs, and those that facilitate agreement among parties who share responsibility for the implementation and management of LUCs. Some systems were found to address issues in more than one category. In addition, some of the systems presented were developed for other purposes but are identified herein as potential tools for consideration or adaptation.

The review of case studies and other information compiled by the ITRC Brownfields Team determined that an effective LUC management system should be web-based; searchable; geographical information system (GIS) compatible; accessible to all stakeholders; and able to track permits, field inspections/activities, land use changes, and other information. The system should provide all information deemed necessary through appropriate links, including complete descriptions of controls, physical characteristics, contaminant data, reports, site plans, and information of public interest for training and outreach. In addition, such a system should be able to notify and/or alert the appropriate stakeholders in the event of threatening activities. In addition to managing LUCs, such a collection of information could be used for all aspects of site management, decision making, and communication.

Some of the current systems that were evaluated by the ITRC Brownfields Team were found to contain some limitations, including inability to combine tracking, notification, and outreach capabilities in a single system. Some systems currently track only certain contaminants or only sites under specific state programs but not all programs within a state. Finally, as typical with other GIS applications, there are still issues in identifying sites by specific or multiple attributes, such as site name (or names), address, parcel number, latitude/longitude, etc. Relative costs were difficult to compare as the costs of these systems were highly dependent on the multiple variables that each individual technology manages and were typically considered to be dependent on the needs of each specific client/user.

It was concluded that the underground utility mark-out and clearance services, collectively referred to as the One-Call system, provide a ready-made network that could be adapted to

include LUCs. The One-Call system is an established, widely used, and familiar system, with a record of success in protecting subsurface utilities. Many of the informational tracking or notification systems, such as Terradex, Accela, or other third-party notification systems, complement each other and the One-Call system, and a combination of important aspects of each system would provide a high level of protection and adequate tracking, notification, and outreach. It is asserted that, through the use of more than one system or “layering” different technologies or significant aspects of these technologies, the effectiveness of the overall system being implemented will be improved.

The ITRC Brownfields Team concludes that states need to implement LUC management systems that include tracking, notification, and long-term stewardship (which include inspections and certifications of the LUCs’ continued adequacy) as part of their mission. An appropriate system should be easily updated and upgraded, using existing technologies for high-resolution mapping, communication, and notification by various means. Consideration should be given to potential future requirements for interstate sharing of information, system compatibility, and uniformity in data presentation and user friendliness. States should also be certain that their systems are comprehensive and include all sites from all of the programs within their states.

States should develop an appropriate, comprehensive LUC management system offering the highest level of tracking and information dissemination. The system should be combined with and used by those who provide land use approvals and by those who conduct actual excavation and construction work. Such a scenario would offer significant benefits to the regulated community, by providing conditions whereby all stakeholders can become more comfortable with the use of LUCs as a viable remediation alternative.